DRAFT Subject to Approval

Nuclear Decommissioning Citizen's Advisory Panel (NDCAP)

Thursday, October 27, 2016

Cafetorium – Vernon Elementary School, 381 Governor Hunt Road, Vernon, VT

Meeting Minutes

NDCAP Members Present:

- Chris Campany, Executive Director of the Windham Regional Commission (WRC)
- Stephen Skibniowsky, representing the Town of Vernon
- Kate O'Connor (Brattleboro), Chair, citizen appointee of Governor Shumlin
- David Andrews, International Brotherhood of Electric Workers (IBEW); representing present & former employees of Vermont Yankee
- Dr. William Irwin, Agency of Human Services- Department of Health
- Martin Langeveld (Vernon), Vice-Chair, citizen appointee of Governor Shumlin
- Jim Matteau (Westminster), citizen appointee of Senate President Pro Tempore John Campbell
- Mike McKenney, Technical Coordinator for Decommissioning, Vermont Entergy
- Jack Boyle, Decommissioning Director, Entergy Nuclear Vermont Yankee (VY)
- George Desch, Deputy Commissioner, Department of Environmental Conservation
- Derrick Jordan (Putney), citizen appointee of Speaker of the House Shap Smith

The following NDCAP members were connected to the meeting via teleconference:

- Lucy Leriche, Secretary of Agency of Congress and Community Development
- Christopher Recchia, Commissioner of Public Service, ex officio
- David Deen, (Westminster),VT State Representative, citizen appointee of Speaker of the House Shap Smith
- James Tonkovich (of Wilder), citizen appointee of Senate President Pro Tempore John Campbell

The following NDCAP members were absent from the meeting:

- Diane Becker, Chief of Technological Hazards, New Hampshire Emergency Management and Homeland Security
- Michael Hebert (Vernon),VT State Representative, member of the House Committee on Natural Resources and Energy
- Paul W. Mark, MA State Representative, (Peru, MA), representing the Towns of Bernardston, Colrain, Gill, Greenfield, Leyden, Northfield, and Warwick, Massachusetts
- VT State Senator Mark MacDonald, member of the Senate Committee on Natural Resources and Energy

Meeting called to order at 6:00 pm

INTRODUCTIONS

The Panel introduced themselves and the Chair gave an overview of the agenda.

APPROVE MINUTES: There were two sets of minutes to approve, March 24, 2016 minutes and the September 22, 2016.

Bill Irwin brought up the following corrections for the March minutes; (1) page 2, line 16 should be "unusual event or alert level"; (2) page 5, line 5 should be "dialogue" vs "dialogued"; (3) page 5, line 15 "plaques" should be "placard"; (4) page 5,line 16 there is "not a" twice; (5) page 6, line 34 states "are they paid on an annual "basis" or on projections?" is how it should read, the word "base" should come out of there.

In the March minutes Bill Irwin suggested a change to page 5, line 41. Bill believes the change is a question of fact. The line as written in the minutes states that all 31 wells are "**non-detectible for tritium**." Bill thinks they are all below the EPA drinking water limit, but not all are always non-detectible. Jack Boyle agreed it was a statement of fact that of the 31 wells there are four that are above detectible, but less than 5,000 picocuries per liter, which is well below the drinking standard limit. Bill Irwin asked if it would be acceptable to change "**non-detectible for tritium"** to read all the wells are **"less than 5,000 picocuries per liter for tritium."** The proposed change was acceptable to Jack.

Chris Recchia raised a concern whether the fact was incorrect or whether it was recorded incorrectly and that the minutes are to reflect what actually occurred in the meeting. Joe Lynch, who made the statement, added he felt the statement may have been taken out of context and is happy to look up what was actually stated.

The Panel was in favor of correcting the minutes by (1) clarifying what was said at the March meeting, and (2) capturing this discussion in the October meeting minutes; and (3) waiting to approve the March meeting minutes at the November meeting.

For the September minutes, Mike McKenney suggested a correction on page 5, line 8 placing a period after the word "site" and instead of having a short example of what was presented to place fuller presentation material in the minutes. There was some additional discussion that minutes are not to capture every single detail, i.e., if the material is in presentations and found on the website. The minutes do reflect a statement regarding where the full presentations can be found. Kate O'Connor made motion to approve the 9/22/16 minutes. Martin Langeveld and Bill Irwin abstained; all remaining panel members approved.

ENTERGY UPDATE ON DECOMMISSIONING ACTIVITIES

Joe Lynch, Government Affairs Manager, Entergy Vermont Yankee, gave an update on recent activities. *(Complete presentation is available at www.vydecommissioning.com and www.publicservice.vermont.gov.)* Joe gave an overview of activities that occurred since the last meeting. At the last meeting he reported that Entergy was in the final stages of laying up systems no longer needed at the site to support power to operations. Entergy continues to remove power from non-essential buildings, which also helps save money for the project. In regard to the update on NRC inspection activities, the NRC just exited their third quarter

integrated inspection report. The report was issued on 10/20/16 with no findings or violations noted.

The NRC issued a decision on a petition filed by the State of Vermont, Green Mountain Power and Vermont Yankee Nuclear Power Corporation on issues associated with use of the decommissioning trust. This is preliminary, but Entergy is pleased by the finding that they are effectively and efficiently utilizing the funds in the trust, and they do not see any need to change the way they are using the funds.

Update on Agency Interactions: Representatives from the Vermont Agency of Natural Resources were on site on 10/13/16. It was a planned walk-through of the north warehouse and second ISFSI pad project area in preparation of taking down the warehouse. There are no following actions. Joe also gave an update on the properties and equipment for sale and the construction of the dry fuel storage pad. Construction began last July and continues to be on schedule and within budget. In September they completed the installation of new 200kW Security Diesel Generator. Fabrications of the cask systems are complete at the factory and they received 6 of the 12 on site in early and mid-October. They will have 12 casks on the pad getting ready for fuel transport next year.

Update on Water Management: They are storing intrusion water in one frack tank and continue with efforts to help minimize and eliminate intrusion water. They have shipped 369,000 gallons of water to date. Joe addressed a question from last meeting to provide more detail as to what happens to the water when shipped to Tennessee. He issued two handouts with details provided by Energy Solutions.

Joe gave an update on the Nuclear Decommissioning Trust Fund. He addressed another question from last the meeting, providing details as to what constitutes changes of the fund through the year. Details indicated on the slide presentation. He gave an update on the second trust utilized for site restoration, continued open communication and transparency, community outreach, and donation projects.

PRESENTATION/DISCUSSION ON THE DECOMMISSIONING OF THE YANKEE ROWE NUCLEAR POWER PLANT ROWE, MASSACHUSETTS, *David Howland, Regional Engineer, Massachusetts Department of Environmental Protection (Complete presentation is available at www.vydecommissioning.com and www.publicservice.vermont.gov.)* The Massachusetts Department of Environmental Protection served as a lead for chemical decontamination and the NRC led on radioactive decommissioning. Dave reported he had a great group of scientists for regulatory oversight. One thing that is apparent is learning that transportation of the spent fuel rods will be longer than anticipated. Rowe was a decommissioning and dismantling project not SAFSTOR project. There are, however, a lot of similarities for going through decommissioning. The process took approximately a total of ten years with multiple jurisdictions that can apply. They decommissioned 12 acres of a 188 acre site. They worked out a plan acceptable to all parties/stakeholders, as indicated on the slides. Rowe was a utility facility while the facility in Vernon is a merchant facility. The results of their efforts lead to

Memo of Understanding, which achieved a permit fee structure, a shared importance of commitment such as coordination of activity, meeting deadlines and a framework for dissolving disputes. It was not wine and roses, particularly in regard to managing waste. An important aspect of the agreement was that they agreed to utilize the Massachusetts Contingency Plan as the best fit for driving the closure process. It was a risk-based system to clean up hazardous material. They agreed early that an acceptable use of the land could be for recreation or commercial use, residential use of the property was not considered. They sorted out classifications of hazardous materials with various risk levels and had to make a determination that it was adequately regulated. Highest risk drove disposal options. All federal rules were embedded in the state rules. They had an advisory panel and website available for public access. Dave reviewed Massachusetts acts/programs that provided oversight. Abatement of asbestos was the first priority before any other activities could be done (see list on the slides). PCB soil and sediment cleanup was a problem from delaminated paint unique to the Rowe facility. The facility always had discharge permit for tritium. Solid waste was broken down until it was no longer solid waste. A beneficial use of the solid waste involved leaving largest pieces to fill voids. The spent fuel pool leaked and migrated towards the river. As you can see in the slides you could appreciate the sequencing of events necessary.

Question from Jim Matteau: You mentioned the spent fuel water and discharge was largely tritiated. Can you give detail on what the treatment was and what discharge was done? Answer: They continued to discharge within parameters of the permit and treatment included to circulate the water to meet the discharge permit. This was a remediation project. Joe Lynch, Entergy, added they weren't allowed to discharge water like they did during operations, but once they got to last volumes they had to use a treatment system, which diluted and discharged in batches to meet permit of Massachusetts and NRC.

Dave reviewed their environmental assessment, adding that the NRC and EPA had different approaches to risk with the same goals in mind. They looked at risk characterization post dismantling from the chemical component and radiological component simultaneously. This was due in a large part to meet public questions.

***Lessons Learned**: Dave outlined the lessons learned from the Rowe decommissioning: Early cooperation is needed to get the job done with commitment to state and local needs, group meetings, shared information, and transparent public process, such as they had with a website bulletin board to inform stakeholders in a timely manner. A preapproved waste management plan allowed for efficient and predicable disposal of all waste (i.e. thermal desorption of PCB soils.)*

QUESTION FROM THE PANEL:

Question from Bill Irwin to Dave Howland: How early after starting decommissioning and dismantling did you see the big issues arise? Answer: Acknowledgement asbestos was early, but the surprise was the significant number of more places it appeared; i.e., paint, floor tiles, coatings. The characterization phase was well done. They took samples for asbestos and for

other contaminants, which allowed them to plan out the abatement process. Once they were ready to mobilize they took in contractors to get the job done and ramped up quickly.

Question from David Andrews to Dave Howland: Were floor tiles characterized ahead of time? Answer: Yes, same with PCB findings.

Question from Bill Irwin to Dave Howland: With regards to the problems that were identified, some in the characterization and some unexpected, what fraction were radiological and what fraction were not radiological? Answer: On the radiological side what was a surprise was the degree found in the concrete. It was more extensive than we thought. On the chemical side the big surprise was the chemicals in the pond, PCB. We knew it traveled but did not expect to find it in the sediments.

Question from Bill Irwin to Dave Howland: You mentioned that the PCB's were unique, is that because the PCB bonded paint was specific to Rowe? Answer: Yes. It is not found in newer facilities. The containment structure at Rowe was exposed, which is not the case in newer facilities. Newer plants have the containment structure in a building so if it delaminates it stays inside. Because containment structure at Rowe was outside, subject to the elements, it ran off in storm water.

Question from Bill Irwin to Dave Howland: Were all the samples shown on the environmental assessment slide taken for the State and NRC? Answer: Just for the State.

Question from Chris Campany to Dave Howland: Who paid the bill for the State regulators? Answer: Yankee.

Question from Chris Campany to Dave Howland: Did it get charged back to ratepayers at the time? Answer from Joe Lynch: I believe it was funded from decommissioning trust fund.

Question from George Desch to Dave Howland: When you mentioned not considering residential use of the land, was it due to inability to meet standards or was the site not suitable for residential? Answer: Everyone's goal was to seek unrestricted status but the PCB issue determined it would not be suitable for residential use.

Question from Chris Campany to Dave Howland: If you are the town, what questions would you be asking about the site characterization? What advice would you give the town of Vernon for something that may not happen for decades out? Answer: Questions centered on future use. What level of clean up are you trying to achieve? What can be achieved with existing technologies?

Question from Steve Skibniowski to Dave Howland: Regarding site characterization, did the entire 1,800 acres remain in an "off limit" category or just the 12 acres that needed clean up? Answer: Areas of contamination were confined to 10 acres, some contamination in immediate areas.

Question from Steve Skibniowski to Dave Howland: Are there restrictions on the 1,800 acres? Answer: No, but because of the stored fuel rods still there access is limited.

Question from Bill Irwin to Dave Howland: Do you know why they don't release other 1,700 aces? Answer: No. The town has interest, but don't know answer. Use is limited due to the spent fuel storage.

Question from George Desch to Dave Howland: In regard to contamination, were the 700 samples of river sediment due to concerns over PCBs? Answer: Yes.

Question from George Desch to Dave Howland: Was it restricted to pond? Answer: No. Streams and swales that lead to the river – anything that conveyed storm water had chips in it.

Question from George Desch to Dave Howland: So the river was dredged as well? Answer: Yes.

Question from George Desch to Dave Howland: How much of the concrete was characterized before and after dismantlement began? Answer: Can't remember, but a good chunk of it had to leave the site because it contained tritium. Some of it stayed like the massive foundations, but I can't answer that question it terms of volume or weight. Clarification by George Desch: In order to rubblize it had to be clean and that was done at the time rubblization took place as opposed to doing it ahead of time? Dave Howland: Most everything was rubblized, but there was an effort to sort it. To move it or leave it it had to be processed. It was processed to 6 minus. Tritium was found in the groundwater. The mitigation strategy was to let it decay. Pumping and treating were not viewed as viable options. We are seeing decay occur and getting close to groundwater standard over the years. The groundwater was factored into the risk assessment.

Question from Jack Boyle to Dave Howland: Was most or all site restoration embedded in the MOU? Answer: There was language in agreement that had to meet prevailing rules, standards, guidelines and policies. It was not too specific, as were using risk based clean up strategy. It was general understanding had to meet state standards over the years.

Question from Jack Boyle to Dave Howland: Were the 83 monitoring wells across the site over 1800 acres? Answer: No, over the ten acres.

Question from Bill Irwin to Dave Howland: Back to the samples, your slide shows a suite of chemical analyses and radiological analyses. Was it typical to have samples collected by a contractor good at collecting environmental samples and then split analysis so that an environmental protection lab would do chemical analysis and radiological lab perform radiological analysis? Answer: Yes.

Question from Kate O'Connor to Dave Howland: You mentioned dealing with NRC and EPA having different expectations. How did you work through all of that? Answer: The

Commonwealth moved into the lead as our standards were more stringent and they had to meet our standards.

Question from Kate O'Connor to Dave Howland: What would be your first recommendation: Answer: It is important to get a level of trust that can be established so you can approach the utility with what you want. If your relationship is a healthy one you will have success. Joe Lynch added that we met a lot with the state agencies, EPA, Army Corps of Engineers, Dept. of Health, Dept. of Environmental Protection and others cooperating vs. arguing over sticking points.

Question from Chris Campany to Dave Howland: You mentioned the group of scientists and engineers working with you, how many? Answer: We had senior scientists (hydrogeologist, risk assessor), 6-7 direct reports, none dedicated to just the project thus only paid for time on the project.

Question from Chris Campany to Dave Howland: Is there at all a difference of approach from dealing with prompt decommissioning vs. SAFSTOR? Answer: We were in dismantling. In the SAFSTOR approach you will get there too. With Pilgrim we are talking about this option.

Question from Chris Recchia to Dave Howland: Is the vintage of Yankee Rowe the same as Vermont Yankee such as we should expect to be dealing with asbestos or PCBs that we haven't anticipated finding? Answer: The fact that it is a newer facility means you might not confront the same contamination issues, like PCBs, which should not be outside the building.
The lead component was taken out of coatings a while ago. Asbestos is still used in some places. But there are advantages because VY is a newer plant.

Comment from Jack Boyle: The age of Vermont Yankee is about 10-12 years newer. Yes, we do have asbestos, PCB, lead, chromium, and radioactive components, but levels and percentage will be a lot less and coming from less sources than seen at Rowe.

Comment from Bill Irwin: Yankee Rowe is a much smaller plant, thus the comparison can be difficult.

Comment from David Andrews: With changes in technology over the ten years Vermont Yankee will have more controlled removal, i.e., more involved indoors vs. outside factors.

Question from Chris Campany to Dave Howland: How much of a footprint beyond the building was needed to decommission or dismantle? Answer: They used typical staging and a majority of the activity was 10-15 yards from the building.

QUESTIONS FROM THE PUBLIC:
Question from Clay Turnbull, Townshend, NE Coaltion: How much additional money was put into decommissioning fund since plant closed? Answer: I cannot answer that as I do not know.

STATE OF VERMONT UPDATE ON DECOMMISSIONG ACTIVITIES

Anthony Leshinskie, Vermont State Nuclear Engineer gave an update on recent activities. (Complete presentation is available at www.publicservice.vermont.gov or www.vydecommissioning.com.) Tony gave an update on the NRC's ruling on the State's petition for uses of the Vermont Yankee decommissioning trust fund, as Joe mentioned earlier. The request for hearing for that petition was denied. Last month the Panel had a presentation from the Department of Emergency Management and Homeland Security regarding the reduction of the EPZ and Emergency Response Plan. Additional state activities continue regarding groundwater management, as Joe discussed earlier.

On October 18, 2016 the NRC Commissioners had a briefing, which is a summary on what the NRC is doing regarding spent fuel management and decommissioning. As a reminder, the NRC is seeking to change public meeting process and has a comment period through November 14, 2016. Tony also gave an update on the Ad-Hoc Rail/Routing Working Group, DOE interactions, status of the DOE Consent-Based Siting Process, and a Fukushima-like research report, all to be found on the website.

QUESTIONS AND COMMENTS FROM THE PANEL:

Question from Bill Irwin for Joe Lynch: Regarding the Brattleboro properties do you know what happened to the control room simulator? Answer: I believe we sold it and it has been removed from the facility.

Question from Bill Irwin for Joe Lynch: Thank you for the update on the withdrawals of the Trust Fund. Do those fund expenses include the taxes on that fund? Answer: Yes, we pay quarterly on anticipated gains and reconcile at the end of the year.

Question from Jim Matteau to Joe Lynch. Can we get a trust fund update routinely? Answer: Yes, I believe I can get it more often. I will be happy to update the Panel.

Comment from Jack Boyle regarding Tony Leshinskie's slide: The Fukushima-like report has not been issued yet but is expected within 30-45 days. They also advised us to be careful to draw correlations to the Fukushima incident to VY.

Comment from Martin Langeveld: It was good and refreshing to hear about the Rowe experience, especially the collegial process that got that job done. The adequacy of decommissioning trust fund to ever get that job done is what stands between now and getting that job done 50 years from now; i.e., costs escalate, funds being taxed, standards for cleanup can change, disposal sites available today may not be available 50 years from now, and the stock market is supposed to perform to allow this job to be done. What if we could issue sufficient bonds right now to start this job and get it done over the next 6,8,10 years and pay for it with the bonds and stop taking money out of the trust fund?

Comment from Chris Recchia: I want to assure people we are looking at every opportunity to advance the schedule and appreciate your comments and do believe we can get this cleaned up and able to use the land in the next decade, not the next five decades.

QUESTIONS AND COMMENTS FROM THE PUBLIC:

Comment from Ned Childs, NE Coalition: In regard to the research on the Fukushima-like matter, there is Rhine River reactor meltdown study in which you will find a 1990 modeling of radionuclide transport. He gave some details of what is in the report ending the commenting that ultimately you will live with the nuclear waste.

COMMENTS FROM THE PUBLIC:

Comments from Marvin Reshnicov of Brattleboro: He noticed the size of the decommissioning fund and looked at expenditures in 2016 and noted about a 6% decrease and the year is not over. The NCR states funds are supposed to increase 2% per year. Will this fund be increasing 2% this year? Is it time for Entergy to put money into the fund?

Comments from Clay Turnbull, Townshend, NE Coalition: Bonding is funding to be done by Entergy and now is the time to get money into the Decommissioning Trust Fund. Texas and Vermont plans to send fuel to a storage site that is filling by other states.

Comment from Ned Childs, NE Coalition, to Chris Recchia: The DPS should take over the plant and get the job done instead of going through the 60 year SAFSTOR option. Answer: Bear with us. We do have an opportunity to hold the owner responsible to do this sooner vs. having the taxpayers pay for it. We are in new stages of the decommissioning and we have to be patient. I do not want to have the taxpayers pay for this yet, or ever for that matter.

WRAP UP AND ADJOURN:

Next meeting: Thursday, November 17, 2016. Discussion was generated over whether December meeting is needed and Panel decided to wait until November meeting to decide.

MEETING ADJOURNED AT 8:40 pm

NOTE: A video of the meeting can be found at publicservice.vermont.gov/electric/ndcap or BrattleboroTV.org